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(54) ACRYLIC SOL

(57)Abstract:

PURPOSE: To produce an acrylic sol having low viscosity and excellent applicability, giving a coating film having excellent surface smoothness, free from generation of harmful gas in incineration and useful for coating, ink, etc., by using an acrylic polymer consisting of a mixture of specific polymer particles in combination with a plasticizer and a filler as main components.

CONSTITUTION: This acrylic sol contains (A) an acrylic polymer consisting of a mixture composed of acrylic polymer particles having two or more different average particle diameter peaks (e.g. a mixture of 20-80wt.% of acrylic polymer particles having an average particle diameter of 0.1-2.0 μ m and 80-20wt.% of acrylic polymer particles having an average particle diameter of 3.0-50 μ m), (B) a plasticizer and (C) a filler as main components. The contents of the components B and C are preferably 50-500 pts.wt. each based on 100 pts.wt. of the component A.

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CLAIMS

[Claim(s)]

[Claim 1] An acrylic sol characterized by consisting of mixture with which this acrylic polymer consists of an acrylic polymer particle to which mean particle diameter has two or more different peaks in an acrylic sol constituent which uses an acrylic polymer, a plasticizer, and a bulking agent as a principal component.

[Claim 2] (A) mean particle diameter 0.1-2.0 20 - 80 % of the weight of acrylic polymer particles which are the range of mum, and (B) mean particle diameter An acrylic sol according to claim 1 characterized by being the mixture which consists of 80 - 20 % of the weight of acrylic polymer particles in a range which is 3.0-50 micrometers. [an acrylic polymer]

[Claim 3] An acrylic polymer 100 They are plasticizers 50-500 to the weight section. The weight section and bulking agents 50-500 An acrylic sol according to claim 2 which comes to contain the weight section.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the acrylic plastisol which consists of an acrylic polymer, a plasticizer, and a bulking agent, and the acrylic organosol which added the organic solvent.

[0002]

[Description of the Prior Art] Current and the plastisol constituent used widely industrially use as a principal component the vinyl chloride sol constituent which made the plasticizer distribute polyvinyl chloride powder and a bulking agent, and is the plastisol which added the pigment, the thermostabilizer, the foaming agent, the diluent, etc. to this constituent by the use, or an organosol further.

[0003] However, on [— the related product using the plastisol containing such a vinyl chloride sol constituent becomes the cause of destructive of the ozone layer of the earth, and the cause of generating of acid rain —] global environment problems, hydrogen chloride gas occurs further preferably at the time of the incineration, an incinerator is damaged remarkably, it has the difficulty of generating harmful matter called dioxin, and it waits for the appearance of a plastisol constituent without such a difficulty replaced with a vinyl chloride sol constituent.

[0004] As a plastisol constituent which does not contain vinyl chloride polymer, the plastisol constituent using the acrylic polymer shown in JP,51-71344,A and JP,54-117553,A is mentioned.

[0005]

[Problem(s) to be Solved by the Invention] For the plastisol constituent shown in JP,51-71344,A or JP,54-117553,A, mean particle diameter is 0.1-500. It is the acrylic sol which distributed to the plasticizer the acrylic polymer which is in the range of mum and has the particle size distribution of a single peak. Since the acrylic sol which contains an acrylic polymer with detailed mean particle diameter among these has the large particle surface area per unit volume of an acrylic polymer particle, initial viscosity becomes high.

[0006] In order to make such an acrylic sol into the practical viscosity for coating, the amount of plasticizers is made [many] or the need for adding the organic solvent for dilution etc. arises. Consequently, it becomes easy to produce the defect that a plasticizer carries out bleed out to the surface of the gelation film of this acrylic sol, or the added organic solvent remains in a gelation film, and spoils a coat property.

[0007] Many poor and uneven gelation films are formed and the leveling nature of the paint film which the homogeneity of the acrylic polymer in an acrylic sol was inferior in, and coated this acrylic sol although the orientation for the initial viscosity of the acrylic sol which, on the other hand, contains an acrylic polymer with big mean particle diameter to become lower than the acrylic sol containing an acrylic polymer with detailed mean particle diameter was seen is not desirable. Moreover, it causes the fall of the productivity of an acrylic sol coating article and is not desirable in order for gelation by heating of a paint film to take long duration.

[0008] Moreover, some which show flow characteristic [dilatancy] have the acrylic sol obtained depending on the particle diameter of the acrylic polymer particle to be used, and such an acrylic sol becomes what has an unsuitable coating property.

[0009] this invention person etc. traced that the acrylic sol with which were satisfied of both reduction of viscosity and the good gelation engine performance could not be obtained, when particle size distribution made it an acrylic sol using the acrylic polymer which has a single peak, as a result of evaluating various particle diameter of the acrylic polymer which an acrylic sol is made to contain.

[0010]

[Means for Solving the Problem] Then, as a result of examining wholeheartedly obtaining an acrylic sol which could solve the above-mentioned technical problem, when particle size distribution considered as an acrylic sol using an acrylic polymer particle of two or more peaks, this invention person etc. found out that the above-mentioned technical problem was solvable, and completed this invention.

[0011] A place made into a summary of this invention Namely, an acrylic polymer, a plasticizer, It is in an acrylic sol which is the acrylic sol constituent which uses a bulking agent as a principal component, and is characterized by consisting of mixture with which mean particle diameter consists of an acrylic polymer particle which has two or more different peaks. (A) mean particle diameter 0.1-2.0 20 - 80 % of the weight of acrylic polymer particles in the range of mum, [this especially acrylic polymer] (B) Mean particle diameter It is in an acrylic sol characterized by being the mixture which consists of 80 - 20 % of the weight of acrylic polymer particles in a range which is 3.0-50 micrometers.

[0012] A presentation and a manufacture method of an acrylic polymer particle which are used for this invention will not be limited especially if storage stability when considering as an acrylic sol is secured. a solution of a polymerization riser specifically obtained by suspension-polymerization method or emulsion-polymerization method — the spray-drying method — or an acid can be added to this solution. or an acrylic polymer can be solidified by salting-out, and an acrylic polymer particle can be obtained by drying this congelation and fine-particles-izing. It is necessary to arrange an obtained acrylic polymer particle with desired particle size distribution by grinding or classification.

[0013] Since mean particle diameter uses mixture of an acrylic polymer particle which has two or more different peaks, an acrylic

polymer contained in an acrylic sol of this invention can secure hypoviscosity-izing and storage stability of initial viscosity of an acrylic sol, and can shorten the gelation time of a paint film formed from this sol, and can form a homogeneous high gelation film.

[0014] Especially, mean particle diameter 0.1–2.0 An acrylic polymer particle in the range of μm and (B) mean particle diameter Since combination of an acrylic polymer particle in a range which is 3.0–50 micrometers can form a uniform coat in hypoviscosity-izing and a short time of an acrylic sol and it can realize a productivity drive, it is an indispensable component.

[0015] Here, mean particle diameter There being not only few reduction effects of the viscosity but storage stability of an acrylic sol made using a less than 0.1-micrometer acrylic polymer particle is not good. Moreover, since mean particle diameter of an acrylic polymer particle is too fine, it is difficult to produce an acrylic polymer particle efficiently.

[0016] On the other hand, mean particle diameter Being out of range and an acrylic polymer particle in a range exceeding 2.0 micrometer which are 3.0–50 micrometers, Mean particle diameter Mixture with an acrylic polymer particle in a range which is 3.0–50 micrometers, and mean particle diameter 0.1–2.0 μm is out of range. An acrylic polymer particle in the range of less than 3.0 micrometers and mean particle diameter 0.1–2.0 An acrylic sol made using mixture with an acrylic polymer particle in the range of μm It becomes the acrylic polymer which has diameter distribution of a single particle mostly, and the reduction effect of sol viscosity containing this acrylic polymer is not discovered.

[0017] Moreover, an acrylic polymer particle and mean particle diameter of 50 micrometers or more Heating time for the gelation becomes long, and an acrylic sol made using mixture of an acrylic polymer particle in the range of 2.0 micrometers or less does not fall and have the desirable productivity of an acrylic sol coating article. [mean particle diameter] Moreover, it becomes [unevenness occurs on a gelation film formed from this acrylic sol, and / smooth nature] poor and is not desirable.

[0018] the blending ratio of coal of an acrylic polymer particle — (A) mean particle diameter 0.1–2.0 an acrylic polymer particle content in the range of μm — 20 – 80 % of the weight, and (B) mean particle diameter It is good to make it a rate that an acrylic polymer particle content which is 3.0–50 micrometers is 80 – 20 % of the weight. As a desirable range, it is (A) mean particle diameter. 0.1–2.0 An acrylic polymer particle of μm is 30 – 70% of the weight of a range, and it is (B) mean particle diameter. A 3.0–50-micrometer acrylic polymer particle is 70 – 30% of the weight of a range. (A) Mean particle diameter 0.1–2.0 An acrylic sol which a content of an acrylic polymer particle of μm made using less than 20% of the weight of a thing or 80% of the weight or more of an acrylic polymer cannot discover the reduction effect of the initial viscosity easily.

[0019] A presentation of an acrylic polymer can hold a distributed condition, without dissolving at a room temperature to a plasticizer which an acrylic polymer particle uses, and at the time of heating of an acrylic sol, if it dissolves for a short time and a gelation film can be formed, it will not be limited especially.

[0020] It will not be limited especially if balance of solubility over an acrylic polymer to be used and insolubility is good as a plasticizer which can be used by this invention. Generally, many dialkyl phthalate system plasticizers are used, it is cheap and especially dioctyl phthalate and JIISO nonyl phthalate have them. [industrially desirable] a mixing ratio of an acrylic polymer and a plasticizer — a rate — acrylic polymer the 100 weight sections — receiving — plasticizers 50–500 weight — the section — it is good to consider as a rate.

[0021] As for a bulking agent which can be used by this invention, a calcium carbonate, baryta, clay, colloidal silica, mica powder, the diatom earth, KARION, talc, a bentonite, glass powder, sand, oxidation and an aluminum hydroxide, an antimony trioxide, a titanium dioxide, carbon black, metal soap, a color, a pigment, etc. are mentioned. Preferably, it is the acrylic polymer 100. They are bulking agents 50–500 to the weight section. It is good to consider as a rate of the weight section.

[0022] Further, solvents, such as mineral turpentine, can be added as a diluent and it can also consider as an organosol at an acrylic sol of this invention. Furthermore according to the purpose, various kinds of additives can also be blended. For example, an adhesion promoter, a leveling agent, a tack inhibitor, a release agent, a defoaming agent, a foaming agent, a surfactant, an ultraviolet ray absorbent, lubricant, a flame retarder, perfume, etc. can be mentioned.

[0023] As the application method of an acrylic sol of this invention, various kinds of methods, such as dip coating besides the fabricating methods, such as coating methods, such as DIP coating, knife coating, roll coating, and curtain flow coating, and DIP molding, cast molding, splash molding, low TESHONARU molding, brush coating paint, spray painting, and electrostatic coating, can be used.

[0024] In order to form a gelation film using an acrylic sol of this invention, a suitable gel formation temperature and the suitable processing time are required. Gel formation temperature is the range of 70 – 260 **, and, specifically, can form a uniform coat by processing for [30 seconds –] 30 minutes. Moreover, a use can also perform printing, embossing, foaming processing, etc. on a gelation film further. An acrylic sol of this invention is applicable in various fields, such as casts, such as a coating, ink, adhesives, and industrial components, a toy. For example, when it applies to a metal plate, a corrosive protection metal plate can be obtained.

[0025] An example is used for below and this invention is explained to it. The “section” in an example shows the “weight section.”

[0026] [Example 1] The water 1251 section, the polyoxyethylene nonylphenyl ether (Kao [Corp.] make: emulgen 910) 10.5 section, and the potassium persulfate 0.75 section are supplied to 5l. 4 opening flask, and it is isobutyl methacrylate 250. The section is added and they are the inside of nitrogen-gas-atmosphere mind, and 180 rpm. The heating polymerization was carried out at 70 degrees C for 5 hours, stirring. Furthermore, it is methyl methacrylate 578. After adding mixture of the section, the methacrylic-acid 6 section, and the dialkyl sulfo sodium-succinate (Kao [Corp.] make: Pelex OTP) 5 section and performing a heating polymerization for 3 hours, the temperature up was carried out to 80 degrees C, it held for 1 hour, and an emulsion polymerization was ended. An obtained emulsion was 40.2% of solid content.

[0027] this emulsion — a spray dryer — using — fine particles — izing — acrylic polymer particle (B) 800 with a mean particle diameter of 15 micrometers The section was obtained. this acrylic polymer particle (B) 400 the section — a grinder (a product made from Turbo Industry: turbo mill T-400) — using — rotational frequency 6000 rpm — grinding — carrying out — acrylic polymer particle (A) 350 with a mean particle diameter of 2 micrometers The section was obtained.

[0028] Acrylic polymer particle 400 (B) The section and acrylic polymer particle 300 (A) The section is mixed and it is dioctyl phthalate

700. The section and calcium carbonate 560 (a product made from Takehara Chemical industry: neo light SP) When the section and the mineral TABEN 35 section were added, viscosity (25 degrees C. :[by Tokyo Keiki Co., Ltd.] E mold viscometer) of an obtained sol was 1700 cps. A knife coating machine is used for a tin plate for this sol, and it is 100. It applied to mum thickness, and when heated for 30 seconds by 200 **, a uniform gelation film was formed. Even if it held this gelation film for one week at 10 degrees C, there was no bleeding of a plasticizer and its compatibility was good.

[0029]

[Examples 2 and 3 and the examples 1-4 of a comparison] An acrylic polymer particle was obtained by the same method as an example 1, and evaluation of the storage stability of an acrylic sol and a gelation film was performed like an example 1 except blending an acrylic polymer particle (A) and an acrylic polymer particle (B) with a compounding ratio shown in a table 1. This result is shown in a table 1.

[0030]

[Examples 4 and 5 and the examples 5 and 6 of a comparison] An acrylic polymer particle (A) and an acrylic polymer particle (B) of mean particle diameter which are shown in a table 1 by the same technique as an example 1 were obtained, and evaluation of the storage stability of an acrylic sol and a gelation film was performed like an example 1. A result is shown table 1.

[A table 1]

| 実施例 および 比較例 | アクリル重合体粒子の配合比 | | | | 評 価 項 目 | | | |
|-------------------|----------------|---------------|----------------|---------------|----------|----------|---------|----|
| | アクリル重合体粒子 (A) | | アクリル重合体粒子 (B) | | 貯蔵安定性 | | ゲル化膜 | |
| | 平均粒子 径 (μm) | 配 合 比 (重%) | 平均粒子 径 (μm) | 配 合 比 (重%) | 初期 粘度 | 貯蔵 粘度 | 平滑 性 | 状態 |
| 実施例 1 | 2.0 | 42.9 | 15.0 | 57.1 | ○ | ○ | ○ | ○ |
| 実施例 2 | 2.0 | 70.5 | 15.0 | 29.5 | ○ | ○ | ○ | ○ |
| 実施例 3 | 2.0 | 31.5 | 15.0 | 68.5 | ○ | ○ | ○ | ○ |
| 実施例 4 | 0.8 | 42.9 | 8.0 | 57.1 | ○ | ○~Δ | ○ | ○ |
| 実施例 5 | 0.8 | 42.9 | 35.0 | 57.1 | ○ | ○ | ○ | ○ |
| 比較例 1 | 2.0 | 0.0 | 15.0 | 100.0 | × | × | Δ | ○ |
| 比較例 2 | 2.0 | 15.0 | 15.0 | 85.0 | Δ~× | Δ~× | ○~Δ | ○ |
| 比較例 3 | 2.0 | 90.0 | 15.0 | 10.0 | Δ~× | × | ○ | ○ |
| 比較例 4 | 2.0 | 100.0 | 15.0 | 0.0 | × | × | ○ | ○ |
| 比較例 5 | 5.0 | 42.9 | 15.0 | 57.1 | × | × | Δ | ○ |
| 比較例 6 | 5.0 | 42.9 | 35.0 | 57.1 | × | × | × | ○ |

・アクリルゾルの貯蔵安定性

初期粘度：ゾル製造直後、25℃で粘度を測定した。

貯蔵後の粘度：10℃で1週間、貯蔵した後の粘度を測定した。

・表中の記号は、以下の粘度を示す。

○： < 2,000 cps
 Δ： 2,000 ~ 4,000 cps
 ×： > 4,000 cps

・ゲル化膜

平滑性： ○： 表面凹凸がない平滑な膜
 Δ： 表面凹凸が少々あるが平滑な膜
 ×： 表面凹凸があり、平滑性のない膜

状態：可塑剤のブリードおよび可塑剤との相溶性良好なものを○で示す。

[0031]

[Effect of the Invention] As explained in full detail above, the acrylic sol of this invention becomes possible [not generating hydrogen chloride gas at the time of the incineration of a product which used this, being able to obtain hypoviscosity plastisol and organosol and forming the high gelation film of smooth nature], and the industrial meaning is work size.

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(54) 【発明の名称】 アクリルゾル

(57) 【要約】

【目的】 低粘度で塗工性、塗膜の平滑性が良好なアクリルゾルであり、これを用いた製品の焼却時に有毒ガスが発生しないアクリルゾルを得ること。

【構成】 アクリル重合体として平均粒子径 0.1~2.0 μ m のアクリル重合体粒子と平均粒子径 3.0~50 μ m のアクリル重合体粒子とからなる混合物を可塑剤等と混合したアクリルゾル。

【特許請求の範囲】

【請求項 1】アクリル重合体、可塑剤、充填剤を主成分とするアクリルゾル組成物において、該アクリル重合体が、平均粒子径が 2 つ以上の異なるピークを有するアクリル重合体粒子からなる混合物にて構成されていることを特徴とするアクリルゾル。

【請求項 2】アクリル重合体が、(A) 平均粒子径が 0.1~2.0 μm の範囲であるアクリル重合体粒子 20~80 重量%と、(B) 平均粒子径が 3.0~50 μm の範囲にあるアクリル重合体粒子 80~20 重量%からなる混合物であることを特徴とする請求項 1 記載のアクリルゾル。

【請求項 3】アクリル重合体 100 重量部に対し、可塑剤 50~500 重量部、および充填剤 50~500 重量部を含有してなる、請求項 2 記載のアクリルゾル。

【発明の詳細な説明】

【0001】

【産業上の利用分野】本発明は、アクリル重合体、可塑剤、および充填剤からなるアクリルプラスチックゾル、および有機溶剤を加えたアクリルオルガノゾルに関する。

【0002】

【従来の技術】現在、工業的に広く用いられているプラスチックゾル組成物は、ポリ塩化ビニルパウダーと充填剤とを可塑剤に分散させた塩ビゾル組成物を主成分としたものであり、さらに用途により、顔料、熱安定剤、発泡剤、希釈剤などを該組成物に加えたプラスチックゾル、または、オルガノゾルである。

【0003】しかし、このような塩ビゾル組成物を含むプラスチックゾルを用いた関連製品は、地球のオゾン層の破壊原因や、酸性雨の発生原因となるなど地球環境問題上好ましくなく、さらに、その焼却時に塩化水素ガスが発生し、焼却炉を著しく損傷させ、ダイオキシンという有害物質を発生するといった難点を有しており、塩ビゾル組成物に替わるこのような難点のないプラスチックゾル組成物の出現が待たれている。

【0004】塩ビポリマーを含まないプラスチックゾル組成物として、特開昭 5 1 - 7 1 3 4 4 号公報、特開昭 5 4 - 1 1 7 5 5 3 号公報に示されるアクリル重合体を用いたプラスチックゾル組成物が挙げられる。

【0005】

【発明が解決しようとする課題】特開昭 5 1 - 7 1 3 4 4 号公報や特開昭 5 4 - 1 1 7 5 5 3 号公報に示されたプラスチックゾル組成物は平均粒子径が、0.1~500 μm の範囲にあり、単一ピークの粒子径分布を有するアクリル重合体を可塑剤に分散したアクリルゾルである。これらのうち、平均粒子径が微細なアクリル重合体を含むアクリルゾルは、アクリル重合体粒子の単位体積あたりの粒子表面積が大きいため、初期粘度が高くなる。

【0006】このようなアクリルゾルをコーティング用の実用粘度とするためには、可塑剤量を多くしたり、希釈用の有機溶剤を添加するなどの必要性が生じる。その

結果、このアクリルゾルのゲル化膜の表面には可塑剤がブリードアウトしたり、添加した有機溶剤がゲル化膜中に残存し被膜特性を損なうといった不良が生じやすくなる。

【0007】一方、平均粒子径が大きなアクリル重合体を含むアクリルゾルの初期粘度は、平均粒子径が微細なアクリル重合体を含むアクリルゾルより低くなる傾向が見られるものの、アクリルゾル中のアクリル重合体の均一性が劣り、このアクリルゾルをコーティングした塗膜のレベリング性は不良で凸凹の多いゲル化膜が形成され好ましくない。また、塗膜の加熱によるゲル化に長時間を要するためアクリルゾル塗工品の生産性の低下を招き好ましくない。

【0008】また、用いるアクリル重合体粒子の粒子径によっては得られるアクリルゾルがダイラタンシーな流動特性を示すものもあり、このようなアクリルゾルは、コーティング特性が不適なものとなる。

【0009】本発明者等は、アクリルゾルに含有させるアクリル重合体の粒子径を種々評価した結果、粒子径分布が単一ピークを有するアクリル重合体を用いてアクリルゾルとした場合には、粘度の低減と良好なゲル化性能の両方を満足したアクリルゾルを得ることはできないことをつきとめた。

【0010】

【課題を解決するための手段】そこで、本発明者等は、上記課題を解決し得たアクリルゾルを得ることについて鋭意検討した結果、粒子径分布が 2 ピーク以上のアクリル重合体粒子を用いたアクリルゾルとすることにより、上記課題を解決できることを見いだして本発明を完成した。

【0011】すなわち、本発明の要旨とするところは、アクリル重合体、可塑剤、充填剤を主成分とするアクリルゾル組成物であって、平均粒子径が 2 つ以上の異なるピークを有するアクリル重合体粒子からなる混合物にて構成されていることを特徴とするアクリルゾルにあり、とくに該アクリル重合体が、(A) 平均粒子径が 0.1~2.0 μm の範囲にあるアクリル重合体粒子 20~80 重量%と、(B) 平均粒子径が 3.0~50 μm の範囲にあるアクリル重合体粒子 80~20 重量%からなる混合物であることを特徴とするアクリルゾルにある。

【0012】本発明に使用するアクリル重合体粒子の組成および製造方法は、アクリルゾルとした時の貯蔵安定性が確保されればとくに限定されない。具体的には、例えば懸濁重合法もしくは、乳化重合法により得た重合上がりの溶液をスプレードライ法により、もしくは該溶液に酸を加えるかまたは塩析によりアクリル重合体を凝固し、この凝固物を乾燥させて粉体化することによってアクリル重合体粒子を得ることができる。得られたアクリル重合体粒子は粉碎もしくは分級により所望の粒度分布に揃える必要がある。

え、窒素雰囲気中、180 rpm で攪拌しながら70℃で5時間加熱重合した。さらにメチルメタクリレート578部、メタクリル酸6部、およびジアルキルスルホコハク酸ナトリウム（花王（株）製：ペレックスOTP）5部の混合物を加え、3時間加熱重合を行なった後、80℃に昇温し1時間保持し、乳化重合を終了した。得られたエマルジョンは、固形分40.2%であった。

【0027】このエマルジョンをスプレードライヤーを用いて粉体化し、平均粒子径15 μ mのアクリル重合体粒子（B）800部を得た。このアクリル重合体粒子（B）400部を粉砕機（ターボ工業（株）製：ターボミルト-400）を用いて、回転数6000 rpmで粉砕を行い、平均粒子径2 μ mのアクリル重合体粒子（A）350部を得た。

【0028】アクリル重合体粒子（B）400部とアクリル重合体粒子（A）300部を混合し、ジオクチルフタレート700部、炭酸カルシウム（竹原化学工業（株）製：ネオライトSP）560部、およびミネラルターベン35部を加えたところ、得られたゾルの粘度（25℃、東京計器（株）製：E型粘度計）は1700 cpsであった。このゾル

をブリキ板にナイフコーターを用いて100 μ m厚に塗布し、200℃で30秒加熱すると均一なゲル化膜を形成した。このゲル化膜は、10℃に1週間保持しても可塑剤のブリードはなく、相溶性良好なものであった。

【0029】

【実施例2、3および比較例1～4】実施例1と同様の方法によりアクリル重合体粒子を得、表1に示す配合比でアクリル重合体粒子（A）とアクリル重合体粒子（B）を配合する以外は、実施例1と同様にアクリルゾルの貯蔵安定性およびゲル化膜の評価を行なった。この結果は表1に示す。

【0030】

【実施例4、5および比較例5、6】実施例1と同様の手法により表1に示す平均粒子径のアクリル重合体粒子（A）およびアクリル重合体粒子（B）を得、実施例1と同様にアクリルゾルの貯蔵安定性およびゲル化膜の評価を行なった。結果を表1示す。

【表1】

| 実施例 および 比較例 | アクリル重合体粒子の配合比 | | | | 評価項目 | | | |
|-------------------|-----------------|----------|-----------------|----------|----------------|-------------------|-------------------|----|
| | アクリル重合体粒子（A） | | アクリル重合体粒子（B） | | 貯蔵安定性 | | ゲル化膜 | |
| | 平均粒子径（ μ m） | 配合比（重量%） | 平均粒子径（ μ m） | 配合比（重量%） | 初期粘度 | 貯蔵後の粘度 | 平滑性 | 状態 |
| 実施例1 | 2.0 | 42.9 | 15.0 | 57.1 | ○ | ○ | ○ | ○ |
| 実施例2 | 2.0 | 70.5 | 15.0 | 29.5 | ○ | ○ | ○ | ○ |
| 実施例3 | 2.0 | 31.5 | 15.0 | 68.5 | ○ | ○ | ○ | ○ |
| 実施例4 | 0.8 | 42.9 | 8.0 | 57.1 | ○ | ○ \sim Δ | ○ | ○ |
| 実施例5 | 0.8 | 42.9 | 35.0 | 57.1 | ○ | ○ | ○ | ○ |
| 比較例1 | 2.0 | 0.0 | 15.0 | 100.0 | × | × | Δ | ○ |
| 比較例2 | 2.0 | 15.0 | 15.0 | 85.0 | $\Delta\sim$ × | $\Delta\sim$ × | ○ \sim Δ | ○ |
| 比較例3 | 2.0 | 90.0 | 15.0 | 10.0 | $\Delta\sim$ × | × | ○ | ○ |
| 比較例4 | 2.0 | 100.0 | 15.0 | 0.0 | × | × | ○ | ○ |
| 比較例5 | 5.0 | 42.9 | 15.0 | 57.1 | × | × | Δ | ○ |
| 比較例6 | 5.0 | 42.9 | 35.0 | 57.1 | × | × | × | ○ |

・アクリルゾルの貯蔵安定性

初期粘度：ゾル製造直後、25℃で粘度を測定した。

貯蔵後の粘度：10℃で1週間、貯蔵した後の粘度を測定した。

表中の記号は、以下の粘度を示す。

○： < 2,000 cps
 Δ ： 2,000～4,000 cps
 ×： > 4,000 cps

・ゲル化膜

平滑性： ○： 表面凹凸がない平滑な膜
 Δ ： 表面凹凸が少々あるが平滑な膜
 ×： 表面凹凸があり、平滑性のない膜

状態：可塑剤のブリードおよび可塑剤との相溶性良好なものを○で示す。

【 0 0 3 1 】

【発明の効果】以上詳述したように、本発明のアクリルゾルは、これを用いた製品の焼却時に塩化水素ガスを発生することがなく、低粘度なプラスチックゾルおよびオルガ

ノゾルを得ることができ、かつ、平滑性の高いゲル化膜を形成することが可能となり、その工業的意義は著大である。